

**TITLE OF THE INVENTION**  
**SUBSURFACE MATERIALS MANAGEMENT AND CONTAINMENT SYSTEM,**  
**COMPONENTS THEREOF AND METHODS RELATING THERETO**

**RELATED APPLICATIONS**

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[0001] This application is a divisional of U.S. Application Serial No. 10/062,817, filed February 1, 2002, entitled SUBSURFACE MATERIALS MANAGEMENT AND CONTAINMENT SYSTEM, COMPONENTS THEREOF AND METHODS RELATING THERETO, <sup>now US 6758634</sup> which claims the benefit of U.S. Provisional Application No. 60/267,320, filed February 6, 2001 entitled SUBSURFACE MATERIALS MANAGEMENT AND CONTAINMENT SYSTEM, which is incorporated herein by reference in its entirety. Furthermore, this application is a continuation-in-part of U.S. Application Serial No. 09/729,435, filed March 12, 2001, entitled ADVANCED CONTAINMENT SYSTEM, <sup>now US 6575663</sup> which is incorporated by reference herein in its entirety.

**GOVERNMENT RIGHTS**

[0002] The United States Government has rights in the following invention pursuant to Contract No. DE-AC07-99ID13727 between the U.S. Department of Energy and Bechtel BWXT Idaho, LLC.

**FIELD OF THE INVENTION**

[0003] The present invention relates generally to methods, components and systems for in situ containment and management of buried waste, contaminated media, and their associated components. Also these methods and devices can be utilized for resource recovery. More particularly, embodiments of the present invention relate to an improved barrier, as well as to its installation and use, for reliably containing and managing leachate, gas phase contaminants, and the like, originating from a zone of interest.

**BACKGROUND**

[0004] Containment, management, and disposal of various types of waste are long-standing problems. Early waste management and disposal systems were primitive, as there were few or no disposal or environmental regulations in place at the time. In countless instances, the waste was simply buried underground. The volume of waste that has been buried is tremendous. Some experts estimate that landfills in the United States alone hold more than 3 million cubic meters of buried waste. Further, much of the waste that was buried comprises heavy metals such as mercury and cadmium, carcinogenic materials such as trichloroethylene, radioactive materials,